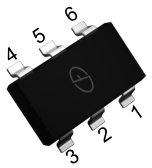
P-Channel -20V (D-S) Power MOSFET

Features

- 100% Avalanche Tested
- Halogen Free, Pb-Free
- RoHS Compliant



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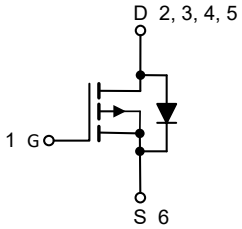
Applications

- Relay driver
- Switching circuits
- High-side load switch
- High-speed line driver



Absolute Maximum Ratings (T_A=25°C unless otherwise noted)				
Parameter		**Symbol**	**Value**	**Unit**
Drain Source Voltage		V_{DS}	-20	V
Gate Source Voltage		V_{GS}	±12	V
Drain Current, Continuous V_{GS}=-10V	T_C=25°C	I_D	-5	A
Drain Current, Pulsed *(Note 1)*		I_{DM}	-20	A
Power Dissipation	T_C=25°C	P_D	1.4	W
Operating Junction/ Storage Temperature Range		T_J/ T_{STG}	-55 to +150	°C

Note 1: Single pulse; $t_p \leq 1us$.

Thermal Characteristics			
Parameter	**Symbol**	**Max**	**Unit**
Thermal Resistance Junction to Ambient *(Note 2)*	R_{thJA}	90	°C/W

Note 2: Device mounted on 1 square inch FR4 PCB board, with 2oz single-sided copper, in a 25°C still air environment.

Electrical Characteristics (T_A =25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=-250μA	-20	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V, V_{GS}=0V	--	--	1	uA
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_{DS}=-250uA	-0.5	--	-1	V
Gate Leakage Current	I_{GSS}	V_{GS}=±12V, V_{DS}=0V	--	--	±100	nA
Drain-Source On-state Resistance *(Note 3)*	$R_{DS(on)}$	V_{GS}=-4.5V, I_D=-5A	--	29	35	mΩ
		V_{GS}=-2.5V, I_D=-3A	--	36	48	
Total Gate Charge	Q_g	$V_{GS(off)}$=0V, $V_{GS(on)}$=-5V, V_{DD}=-10V, I_D=-4.5A	--	12	--	nC
Gate-Source Charge	Q_{gs}		--	1.3	--	
Gate-Drain Charge	Q_{gd}		--	3.5	--	
Turn-on Delay Time	$t_{d(on)}$	V_{GS}=-4.5V, V_{DD}=-10V, R_L=2.5Ω, R_G=3Ω	--	11	--	ns
Turn-on Rise Time	t_r		--	10	--	
Turn-off Delay Time	$t_{d(off)}$		--	17	--	
Turn-off Fall Time	t_f		--	22	--	
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-20V, f=1MHz	--	874	--	pF
Output Capacitance	C_{oss}		--	99	--	
Reverse Transfer Capacitance	C_{rss}		--	86	--	

Reverse Diode Characteristics (T_A =25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Forward Current, Continuous	I_{SD}	T_C=25°C	--	--	-5	A
Diode Forward Voltage *(Note 3)*	V_{SD}	I_F=-1.3A, V_{GS}=0V	--	--	-1.3	V

Note 3: Pulse test; pulse width ≤ 380μs, duty cycle ≤ 1%.

Typical Characteristics Curves (T_A = 25℃ unless otherwise noted)

Fig.1 - Output Characteristics

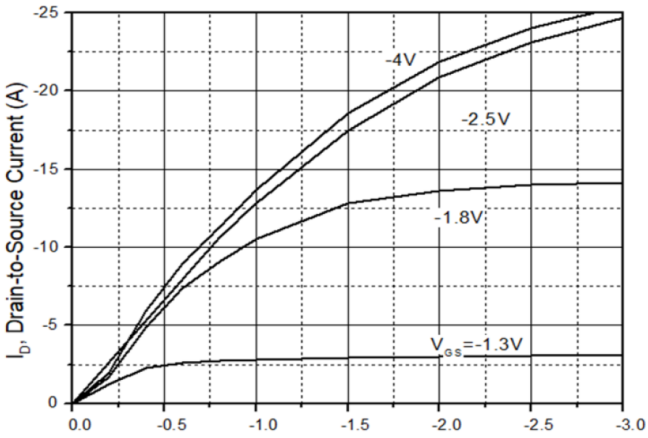


Fig.2 - Transfer Characteristics

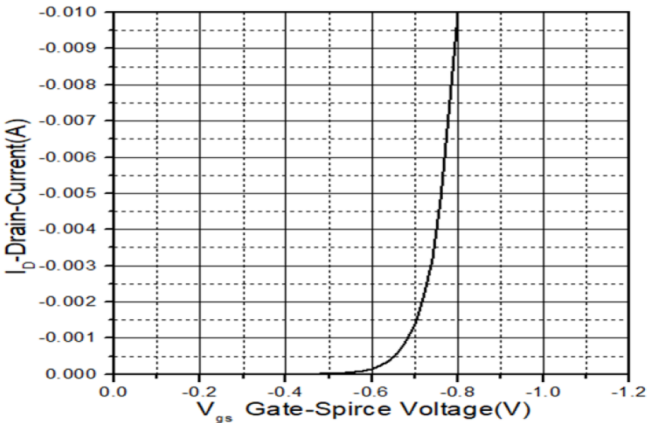


Fig.3 - Capacitance

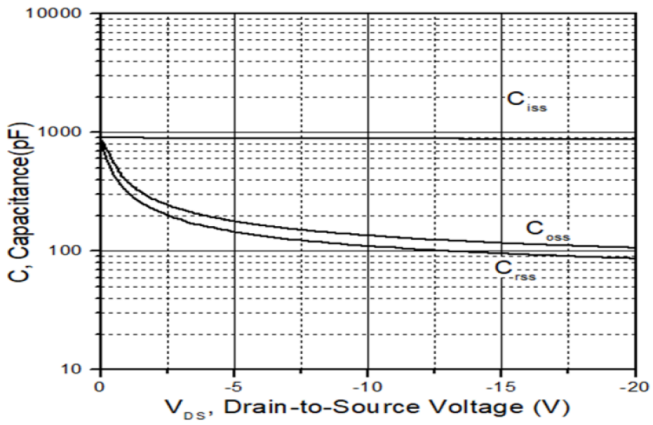


Fig.4 - Gate charge

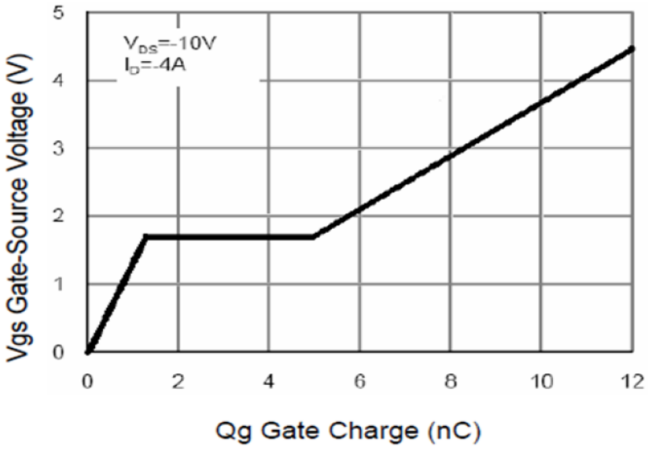


Fig.5 - Safe Operating Area

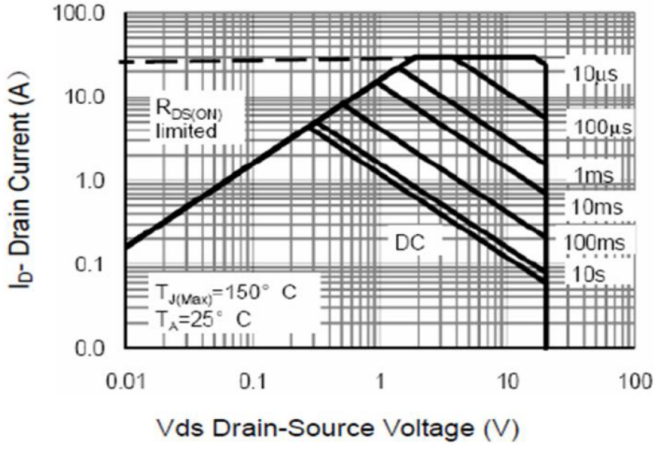
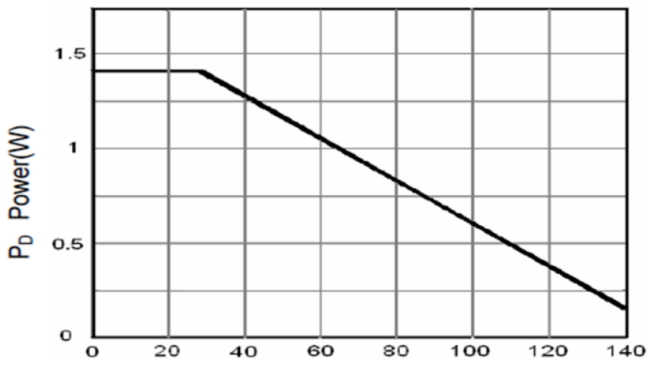


Fig.6 - Power Derating



Package Outline Dimensions (Unit: millimeters)

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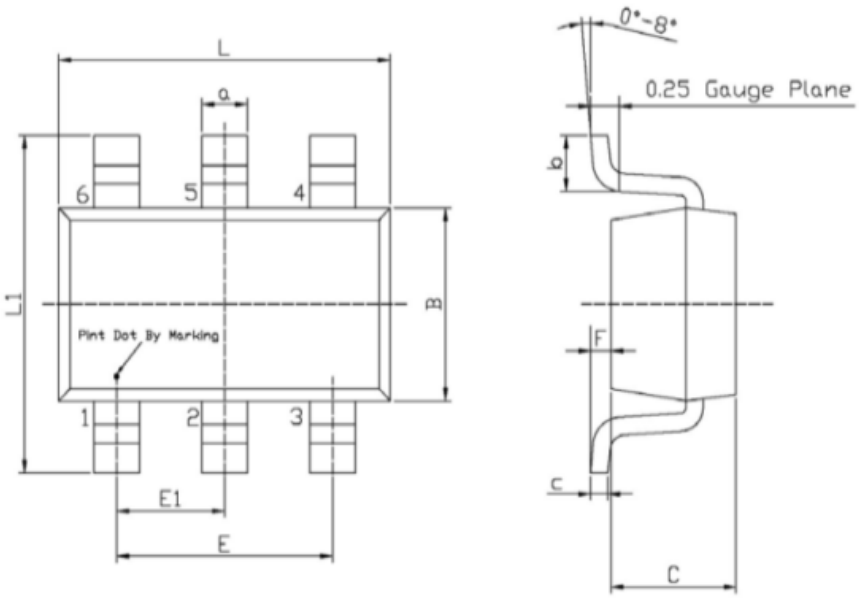
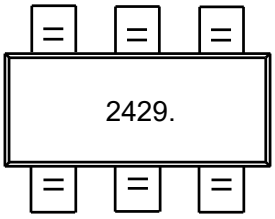


Unit: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
L	2.82	3.02	E1	0.85	1.05
B	1.50	1.70	a	0.35	0.50
C	0.90	1.30	c	0.10	0.20
L1	2.60	3.00	b	0.35	0.55
E	1.80	2.00	F	0	0.15

Marking Outline



Part Name: GMP2429UP

1. P/N Mark: 2429.

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